PCT

(19) World Intellectual Property Organization International Bureau

(43) International Publication Date 6 October 2005 (06.10.2005)

(10) International Publication Number WO 2005/091820 A3

(51) International Patent Classification:

 A63B 37/02 (2006.01)
 B32B 38/04 (2006.01)

 A63B 39/00 (2006.01)
 B29C 65/00 (2006.01)

 B32B 37/00 (2006.01)
 B32B 5/02 (2006.01)

(21) International Application Number:

PCT/US2005/004821

(22) International Filing Date:

15 February 2005 (15.02.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/550,653

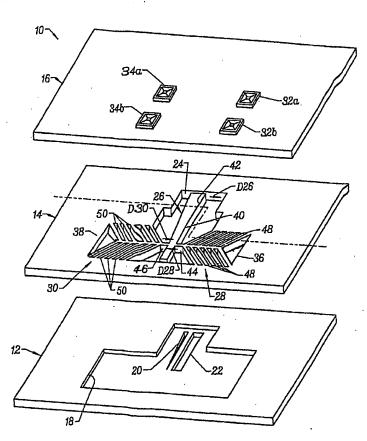
5 March 2004 (05.03.2004)

- (71) Applicant (for all designated States except US): ALU-MINA MICRO LLC [US/US]; 1971 Midway Lane, Suite J, Bellingham, WA 98226 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): DAVIES, Brady, Reuben [US/US]; 1281 Sandstone Way, Bellingham, WA 98226 (US).

- (74) Agent: SHAH, Shital, A.; MacMillan Sobanski & Todd LLC, One Maritime Plaza, 4th Floor, 720 Water Street, Toledo, OH 43604 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: SELECTIVE BONDING FOR FORMING A MICROVALVE



(57) Abstract: A method for forming a microvalve is disclosed. The method includes providing a first silicon layer (12) and a second silicon layer (14), etching the second silicon layer to form a slider portion (40), coating a coating material onto the slider portion (40), bonding the first silicon layer (12) to the second silicon layer (14), wherein the coating material separates the slider portion (40) from the first silicon layer (12) and prevent the slider portion (40) from bonding to the first silicon layer (12).

WO 2005/091820 A3 |||||||||||

WO 2005/091820 A3



GQ, GW, ML, MR, NE, SN, TD, TG).

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, (88) Date of publication of the international search report: 26 October 2006

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH RÉPORT

International application No.

	PCT/US05/04821	
A. CLASSIFICATION OF SUBJECT MATTER PC: A63B 37/02(2006.01),39/00(2006.01);B32B 37	7/00(2006.01),38/04(2006.01);B 29 C 65/00	(2006.01)
B32B 5/02(2006.01)		,
USPC: 156/81,155,272.2,275.7,289,290;422/50,99 According to International Patent Classification (IPC) or to both	national classification and IPC	,
B. FIELDS SEARCHED		
	d bu alassi Cassian and Labora	
Minimum documentation searched (classification system followe U.S.: 156/81,155,272.2,275.7,289,290;422/50,99	o by classification symbols)	,
Documentation searched other than minimum documentation to t	the extent that such documents are included in	n the fields searched
Electronic data base consulted during the international search (na	ame of data base und, where practicable, sea	rch terms used)
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category * Citation of document, with indication, where	appropriate, of the relevant passages	Relevant to claim No.
X US 6,096,149 (Hetrick et al) 1 August 2000 (1.08. 33, Col 3, lines 61-65, Col 4, lines 1-12, Col 4, lines 18-25.		1-12, 21-30, and 32-38
X US 6,116,863 (Ahn et al) 12 September 2000 (12.11-58, and Col 7, lines 41-53)	09.2000), Col 5, lines 20-43, Col 6, lines	13-20 and 31
		٠.
		٠
		•
Further documents are listed in the continuation of Box C.	See patent family annex.	•
Special categories of cited documents:	"T" later document published after the intern	stional filing date or priority date
"A" document defining the general state of the art which is not considered to be of particular relevance.	and not in conflict with the application to principle or theory underlying the inventi	
"E" cartier application or patent published on or after the international filing date	"X" document of particular relevance; the cla considered novel or cannot be considered when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance, the cla considered to involve an inventive step v	
"O" document referring to an oral disclosure, use, exhibition or other means	with one or more other such documents, to a person skilled in the art	
"P" document published prior to the international filing data but later than the priority data claimed	"&" document member of the same patent far	nity
Date of the actual completion of the international search	Date of mailing of the international search report	
07 August 2006 (07.08.2006) Name and mailing address of the ISA/US	Authorized officer	EY ZUUD
Mail Stop PCT, Attn. ISA/US	I AUGUSTICET I I	
	\\	
Commissioner of Patenta P.O. Bry. 1450	Christopher A Fioritte	hilled
Commissioner of Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-	hifeld